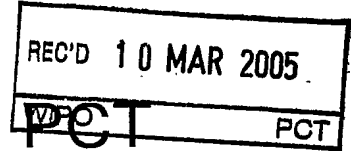


PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY



To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/US2004/004790

International filing date (day/month/year)
18.02.2004

Priority date (day/month/year)
18.02.2003

International Patent Classification (IPC) or both national classification and IPC
H04Q7/38, H04L1/00

Applicant
QUALCOMM INCORPORATED

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☒ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☒ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2004/004790

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2004/004790

Box No. II Priority

1. ☒ The following document has not been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. ☐ It has not been possible to consider the validity of the priority claim because a copy of the priority document was not available to the ISA at the time that the search was conducted (Rule 17.1). This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

4. Additional observations, if necessary:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2004/004790

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

- ☐ the entire international application,
☒ claims Nos. 7

because:

- ☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):
☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 7 are so unclear that no meaningful opinion could be formed (*specify*):

see separate sheet

- ☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
☐ no international search report has been established for the whole application or for said claims Nos.
☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:
the written form ☐ has not been furnished
☐ does not comply with the standard
the computer readable form ☐ has not been furnished
☐ does not comply with the standard
☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-bis of the Administrative Instructions.
☐ See separate sheet for further details

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2004/004790

Box No. IV Lack of unity of invention

1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees, the applicant has:
- ☒ paid additional fees.
 - ☐ paid additional fees under protest.
 - ☐ not paid additional fees.
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is
- ☐ complied with
 - ☒ not complied with for the following reasons:
see separate sheet
4. Consequently, this report has been established in respect of the following parts of the international application:
- ☒ all parts.
 - ☐ the parts relating to claims Nos.

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	8, 19, 30
	No: Claims	1-6, 9-18, 20-29, 31-33
Inventive step (IS)	Yes: Claims	
	No: Claims	1-6, 8-33
Industrial applicability (IA)	Yes: Claims	1-6, 8-33
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item III

Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

- 1 The wording of claim 7 is not clear, because it is not clear how said information on said burst oriented channel can be decoded using said packet "if the sub-packet ID and payload are not expected", i.e it is unclear to which technical features said phrase refers. Due to this major unclarity, no examination of this claim has been possible.

Re Item IV

Lack of unity of invention

- 1 The application does not meet the requirements of Article 6 PCT, because claims 3, 6, 9, 14, 17, 20, 25, 28, and 31 are not clear.
 - 1.1 The term "zero-rate packet" used in claims 6, 9, 17, 20, 28 and 31 is vague and unclear and leaves the reader in doubt as to the meaning of the technical features to which it refers, thereby rendering the definition of the subject-matter of said claims unclear. In the following, said term has been interpreted as being a packet which indicates that no data is being sent on the burst oriented channel at said time, which is supported by the description (p. 9, paragraph [0040], ll. 4-5).
 - 1.2 The term "subframe interval" used in claims 3, 14 and 25 is vague and unclear and leaves the reader in doubt as to the meaning of the technical features to which it refers, thereby rendering the definition of the subject-matter of said claims unclear. In the following, said term has been interpreted as referring to a predetermined interval, just as in claim 2.
- 2 Above-mentioned clarity objections notwithstanding, this Authority considers that there are two inventions covered by the claims indicated as follows:
 - I: Claims 1-8, 12-19 and 23-30 directed to a method, system and base station for analysing the history of changes in received packets.

II: Claims 9-11, 20-22 and 31-33 directed to a method, system and base station for validating the correctness of a no-packet indication on a control channel.

The reasons for which the inventions are not so linked as to form a single general inventive concept, as required by Rule 13.1 PCT, are as follows:

2.1 The prior art has been identified as document D1:

D1 : WO 02/37693 A (AMRANI OFER ; ARIEL MEIR (IL); CUTE LTD (IL)) 10 May 2002 (2002-05-10)

2.2 Regarding claim 1, document D1 discloses (the references in parenthesis applying to this document): "A method for evaluating packets and frames in a wireless communication system having a burst oriented channel, and a corresponding rate indicator channel (p. 5, ll. 6-19), the method comprising: monitoring the rate indicator channel; and determining the presence of a packet on the rate indicator channel (p. 5, ll. 6-19) based on a likelihood generated by a maximum likelihood decoder (p. 6, ll. 9-16, p. 7, ll. 15-17 and p. 11, ll. 5-15)."

Similar objections apply to independent claims 12 and 23, which are corresponding system and base station claim of method claim 1. Consequently, claims 1, 12 and 23 are not novel (Art. 33(1) and 33(2) PCT).

2.3 Dependent claims 2-7, 13-18 and 24-29 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty, the reasons being as follows:

- The additional features of claims 2-5, 13-16 and 24-27 are disclosed in D1 (p. 5, ll. 6-19).
- The additional feature of claims 6, 17 and 28; to analyse packets if they are detected on the rate indicator channel, is disclosed in D1 (p. 5, ll. 6-19).
- Claims 7, 18 and 29, as far as it can be understood, refers to decoding of information on the burst orientated channel using information sent on said rate

indicator channel, which is also disclosed in D1 (p. 5, ll. 6-19).

Consequently, claims 2-7, 13-18 and 24-29 are not novel (Art. 33(1) and 33(2) PCT).

2.4 It follows that the following technical features of claims 8-11, 19-22 and 30-33 make a contribution over the prior art and can be considered as special technical features within the meaning of Rule 13.2 PCT:

- Regarding invention I: Claims 8, 19 and 30: "comparing a sub-packet ID and a payload size of the packet to sub-packet IDs and payload sizes of previous packets."

- Regarding invention II: Claims 9-11, 20-22 and 31-33: "detecting energy on the burst oriented channel if there is no packet on the corresponding rate indicator channel and no packet was expected."

2.5 The problems solved by these special technical features can therefore be construed as:

- Regarding invention I: How to analyse the packet history in a wireless communication system?

- Regarding invention II: How to control the correctness of a control channel indicator?

2.6 No further special technical features are available by means of which a relationship could be established between the different subject-matters of the above-mentioned groups of claims.

2.7 Consequently, neither the objective problem underlying the subjects of the claimed inventions, nor their solutions defined by the special technical features allow for a relationship to be established between the said inventions, which involves a single general inventive concept.

2.8 In conclusion, the groups of claims are not linked by common or corresponding

special technical features and define two different inventions not linked by a single general inventive concept. The application, hence does not meet the requirements of unity of invention as defined in Rules 13.1 and 13.2 PCT.

Re Item V.

1 The following documents are referred to in this communication:

D1 : WO 02/37693 A (AMRANI OFER ; ARIEL MEIR (IL); CUTE LTD (IL)) 10 May 2002 (2002-05-10)

D2: 3RD GENERATION PARTNERSHIP PROJECT, TECHNICAL SPECIFICATION GROUP RADIO ACCESS NETWORK: "3GPP TS 25.322 V4.7.0 ; Radio Link Control (RLC) protocol specification ; Release 4" 3GPP, December 2002 (2002-12), pages 1-76, XP002294128

D3: ATTAR R A ET AL: "A reverse link outer-loop power control algorithm for cdma2000 1xEV systems" ICC 2002. 2002 IEEE INTERNATIONAL CONFERENCE ON COMMUNICATIONS. CONFERENCE PROCEEDINGS. NEW YORK, NY, APRIL 28 - MAY 2, 2002, IEEE INTERNATIONAL CONFERENCE ON COMMUNICATIONS, NEW YORK, NY : IEEE, US, vol. VOL. 1 OF 5, 28 April 2002 (2002-04-28), pages 573-578, XP010589559 ISBN: 0-7803-7400-2

Regarding invention 1 (as defined in paragraph 2.4 above):

- 2 The application does not meet the requirements of Article 6 PCT, because claims 3, 6, 14, 17, 25 and 28 are not clear, see paragraphs 1.1 and 1.2 above.
- 3 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1-7, 12-18 and 23-29 is not new in the sense of Article 33(2) PCT, see paragraphs 2.2 and 2.3 above.
- 4 Dependent claims 8, 19 and 30 do not contain any features which, in combination

with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step (Articles 33(1) and 33(3) PCT), the reasons being as follows: The additional feature of said claims: to compare the sub-packet ID and a payload size of said packet to sub-packet IDs and payload sizes of previous packets, is considered to be a standard feature of all 3GPP systems - see for instance D2 (p. 54-55), sequence number=sub-packet ID. Consequently, said claims are not considered inventive over D1.

Regarding invention 2 (as defined in paragraph 2.4 above):

- 5 Document D1 discloses (the references in parenthesis applying to this document) a method, a system and a base station for evaluating packets and frames in a wireless communication system, having a burst oriented channel and a corresponding rate indicator channel (p. 573, left column, ll. 24-28), in which said rate indicator channel is monitored and the presence of a packet on said rate indicator channel is determined based on a likelihood generated by a maximum likelihood decoder (p. 573, right column, ll. 1-9), wherein said packet is compared with an expected packet type if the packet is a zero-rate packet (p. 573, right column, ll. 1-4) and wherein the validity of a frame comprises detecting energy on the burst orientated channel if there is no packet on the corresponding rate indicator channel and no packet was expected (p. 574, right column, sub-chapter C, p. 575, right column, ll. 8-19, p. 576, left column, ll. 8-13 and 38-39 and right column, ll. 22-29; *packets received in NO DATA mode (i.e when NULL frames are sent on the rate indicator channel are used in FER calculations etc.))*).

Consequently, the subject matter of claims 9-11, 20-22 and 31-33 is not new (Art. 33(1) and 33(2) PCT).